THE USE OF INCOME FOR POVERTY ASSESSMENT

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Income is a dimension usually employed in assessing welfare in general and poverty in particular. Its close relationship with utility is frequently emphasised as the latter depends on the consumption of goods and services an individual is able to purchase. From this perspective, however, expenditures should be considered a better proxy than income and therefore that variable is actually used in many analyses.

Nevertheless, income appears as a relevant variable when a non-welfarist view is considered. Proposals such as those put forward by Rawls (primary goods) and Sen (capacities) stress the convenience of considering the potential capacity individuals have to reach a given level of welfare instead of the actual level of welfare reached. The relevance of income derives, in this case, from being a basic determinant of this capacity as it conditions the possibility of obtaining goods and services through the market.

But income as it is regularly measured in household surveys —the basic data source for assessing poverty in many countries— faces important limitations when employed as a proxy either of utility or of capacity. The main reason is that in most cases those surveys only ask for incomes individuals receive during a short period of time —generally, one month—; i.e. they ask for the "current" income. As earnings may change from month to month in a significant way —

they may even fall to nil when exiting employment—, this variable is not completely adequate to assess poverty. It may lead to classify certain households, which are (are not) regularly poor, as non poor (poor) in a given period. Some households whose "current" incomes lie below the poverty line may resort to resources (savings) they have in order to acquire the normative basket of goods and services. Similarly, the fact that a household's current income be above the poverty lines does not suffice as an indicator of a non-poverty situation if these earnings cannot be sustained and/or are extraordinarily higher than those usually obtained.

Resorting to current income may give rise to a highly volatile measure of poverty not so much because the usual indices (head count, intensity, severity) will show high short term variations but because important inflows of households in and out of the poverty situation will occur.

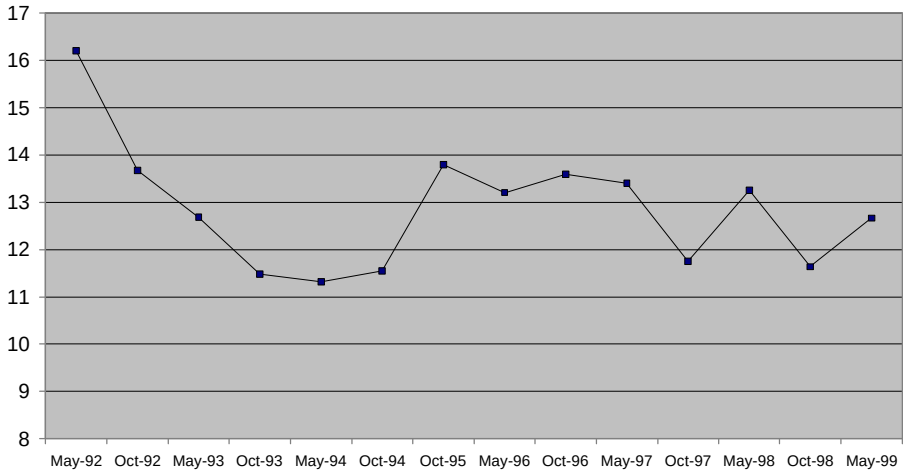
The following data for Greater Buenos Aires on poverty mobility worked out from the Argentine household survey illustrate this point. The sampling design of this survey, as of those of other Latin American current or permanent household surveys, implies that the same dwelling is visited several times. A household group may therefore be followed up during several periods and, consequently, it is possible to measure changes in the poverty status. Specifically in the case of the Argentine survey, each of the selected dwellings is interviewed in four successive waves; there are two waves in a year (reference periods for income are April and September). Consequently, 25% of the sampled dwellings is changed in each wave and 75% of the sample overlaps

during two successive waves.[1] It is therefore possible to consider this group and cast up a movement matrix which classifies households according to their poverty status in both periods simultaneously.

As it can be seen in **Chart 1** poverty turnover is high, the proportion of total households entering and exiting poverty —the gross change rate— varied between 11 and 16% during 1992-1999, the period under analysis [2]. It must be taken into account that those were years of price stability. As the head count ratio fluctuated around 20% (see below), those figures imply that the number of households changing poverty status amounted to nearly 50% of poor

Chart 1.

Poverty turnover Greater Buenos Aires 1992-1999



households. They indicate that during periods when poverty was rising (declining), a significant proportion of households underwent income increases

[1] As it will be indicated below, actual sample size is lower than that proportion due to non-response.

(reductions). Changes in the overall poverty head count ratio are, hence, the net result of movements in both directions.

This volatility derives both from changes in the number of earners (or in the dependence ratio) and from changes in earnings of those members already receiving an income. The first seems to be the principal reason as data in **Table 1** suggest: those households exiting and entering poverty increase or decrease their dependence ratio in about one person per earner on average.

Median income of those households exiting poverty was about 75% of the poverty line while that of those entering poverty was approximately 40% higher than the normative basket and reached 75% after entering (see **Table 2**).

Expenditure and permanent income

The discussion in the previous section suggests, therefore, that "permanent income" or, at least, a less volatile definition of income —i.e. that earned during a relatively long period of time— would be a more relevant alternative to assess poverty (and welfare in general). However, this kind of variables is difficult to find in the usual data sources; consequently, expenditure is seen as an alternative as it is a good proxy for relatively long term income. It is well known that households' expenditure is less volatile than current income as it is determined by the amount of resources expected to be obtained over a period of

[2] Difficulties exist with the first wave of 1995 and, therefore, it was not considered in the analysis.

time longer than a month (i.e. that considered in most surveys when measuring income). Even if households do not always actually transfer resources through time in order to compensate for income fluctuations, evidence shows that expenditures are more stable than current income.

Another reason for preferring expenditure to income is that measurement errors would be larger for the latter than for the former.

An often mentioned drawback of expenditure figures is that they are scarce. At least in Latin America, expenditure surveys are usually carried out once every decade and only one country in the region shows a higher frequency.

The way expenditure is measured in many income and expenditures surveys (IES) imposes another serious restriction on the use of this variable for poverty assessment, even more serious than those problems already discussed for current income. This limitation stems from the fact that IES resort to a very short reference period for food expenditure, while households carry out their food purchases with different frequencies. Specifically, in many IES one week's food expenditure is surveyed. Consequently, many households may declare a very low (or a very high) figure if purchases are concentrated on a given week. Therefore, for many interviewed households it would be impossible to obtain a figure which could be used as an indicator of, say, total monthly expenditures.

That procedure for surveying food expenditures proves adequate when estimating aggregate expenditure figures for groups of households, one of the

main goals of IES. Some households of the group would have purchased food during the reference week while others would not.

However, such procedure has serious consequences when figures for each household are intended to be used as a proxy for permanent or long term income in order to be compared to the poverty line.

A simple exercise performed with data from the 1997 Argentine IES shows how that procedure may lead to unexpected results. Poverty head count ratios were estimated making alternative use of household income and household expenditure as measured in the survey; results appear in the following figure. As it can be seen, poverty incidence is larger when expenditure is used, which is an unexpected outcome. One would have expected the opposite result in a case such as the one considered here as employment variation is the main reason for household current income change over time in a period of relative wage stability (as in 1997 in Argentina). The fact that some members become unemployed leads to a drastic reduction in current income but to a proportionally lower fall in expenditure; consequently, many households will be registering current income below the poverty line but their expenditure would be above it. A symmetric situation —a household member re-entering employment but the household consumption kept down— appears as rather less frequent.

Greater Buenos Aires, 1997
Poverty Head Count Ratios (%)

	Using expenditure	Using current income
Households	21.3	14.1
Population	30.1	21.7

Source: own estimates from Argentine IES survey

Therefore, the relationship found between the two measures makes one hesitate to use, for poverty analysis, expenditure figures at the household level as surveyed in IES such as those carried out in Argentina.

It must be clear that we are not suggesting that such procedure will always generate a bias of the sign found for Argentina when measuring poverty incidence. Difference between both alternatives —i.e. using income or expenditure— may be of any sign and it will depend on the weekly distribution of interviews and on the households weekly food purchases distribution.

An alternative approach

As already mentioned, the sample design of some Latin American current or permanent households surveys implies that the same dwelling is visited several times. Consequently, it is not only possible to measure changes in a household poverty status through time when looking at the household current income (as done previously), It also allows one to assess poverty (and welfare in general) using a “long term” income which results from averaging those declared in all,

or in some, of the different waves during which the household is interviewed. This average income may be considered as a better variable for that purpose than current income.

In the first heading the rotating scheme of the Argentine survey was briefly described; according to it, it turns out that 25% of the sampled dwellings is changed in each wave and 75% of the sample overlaps during two successive waves, 50% during three and only 25% may be followed during four waves (i.e. two years). Furthermore, sample size does not only fall due to replacement but also because of non-response.[3] **Chart 2** indicates the actual sample size for the different alternatives. A trade-off therefore exists between the need to estimate an average income considering as many periods as possible and the need to work with a reasonable sample size.

Chart 3 includes the official estimates of poverty incidence for Greater Buenos Aires together with those produced employing average incomes. In one case, the average over four waves is considered; i.e. the figure for period "t" is calculated by considering only those households with valid answers in "t-3", "t-2", "t-1" and "t". Poverty line was, in this case, compared with each household's average income in these four periods. For example, and taking also into account figures from the previous chart, it turned out that the estimate for September 1998 was calculated with only 11% of the total sample. Similarly, the three period average considers incomes of "t-2", "t-1" and "t" for each of those households with

[3] It must be taken into account that response in all the waves considered is necessary.

valid answers for the three periods. The two period average is worked out by averaging the “t-1”and “t’ current incomes of each household.

Data produced with the four waves average behave erratically and exhibit important departures from the official figures. However, the difference narrows significantly when sample size is increased by considering the three or two period average.

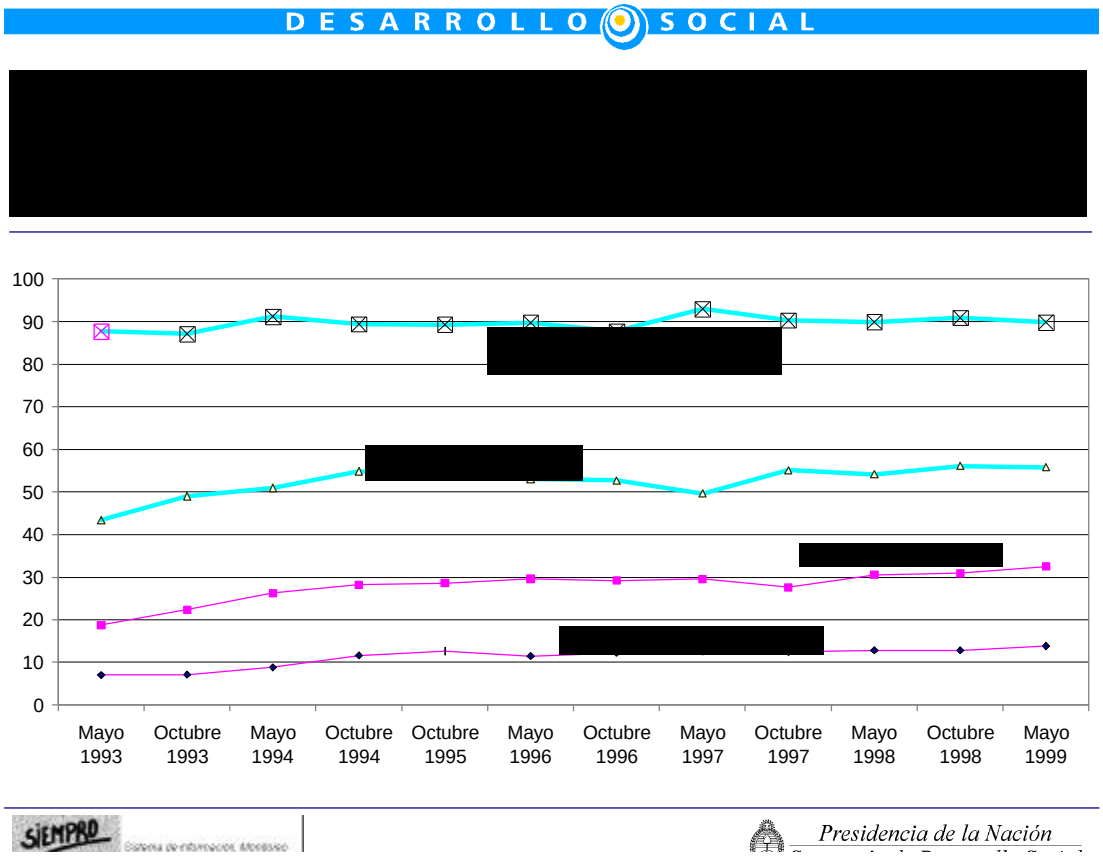
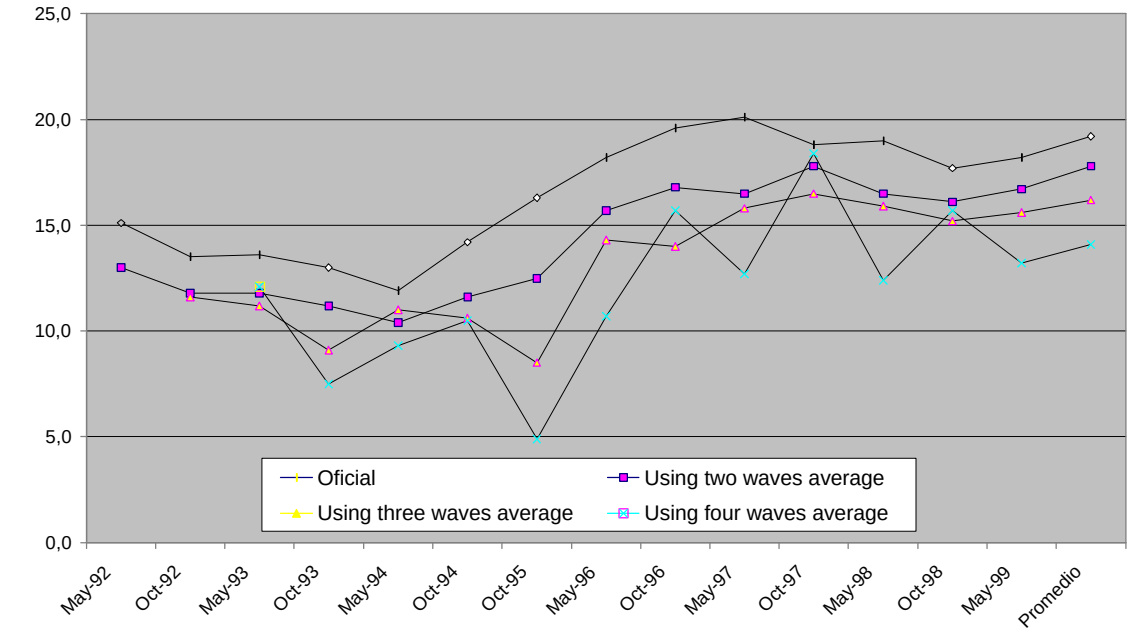


Chart 3

Poverty head count ratio estimated from

Greater Buenos Aires, 1993 - 1999.



By using average income we still adhere to the view that poverty must be assessed through indicators of "capacity". Moreover, this alternative seems more related to such idea than current income and, consequently, offers those advantages usually associated with expenditure. Specifically, this approach reduces the chances of identifying as poor those households with circumstantial low income which will only unlikely be actually deprived. An example of that situation would be: households whose principal, or only bread-winner, became unemployed but which have enough savings to finance job searching; own-account workers suffering a circumstantial sales reduction.

The association of permanent income and expenditure with three or four waves' average income must not be overemphasised. As previously discussed, it should be expected that poverty incidence be almost always higher when using current

income than with permanent income. This happens because when some member becomes employed —after being unemployed— current income may be only marginally higher than permanent income and, as suggested, this does not occur in the symmetric situation. Instead, when poverty incidence estimated with current and average income is compared, it is possible that when unemployment falls the use of the former indicator lead to lower poverty incidence. However, as most unemployment spells are relatively short, this possibility does not appear as very probable.

One advantage of the alternative approach suggested is that it may smooth the effect on poverty incidence (and other indicators) of short-term economic fluctuations. Consequently, a better definition of the group of households actually affected by deprivation is also obtained.

The following Figure shows for October 1997 that while 5.4% of total households registered an average income above the poverty line but a current income below it, 2.5% was in the opposite situation.

Poverty status according to current and average income (% of households)

Using average income	Using current income		
	Poor	Non-poor	Total
Poor	13.4	2.5	15.9
Non-poor	5.4	78.6	84.1
Total	18.9	81.1	100.0

Table 1

Dependence ratio of households entering and exiting poverty. Greater Buenos Aires, 1992-1999

	May-92	Oct-92	May-93	Oct-93	May-94	Oct-94	May-95	Oct-95	May-96	Oct-96	May-97	Oct-97	May-98	Oct-98	May-99	Average
Dependence ratio 1/																
Before																
Entering	2,5	2,4	2,7	2,5	2,5	2,5	2,4	2,5	2,5	2,3	2,3	2,4	2,5	2,4	2,3	2,4
Exiting	3,4	3,3	3,3	3,5	3,6	3,3	3,7	3,7	3,2	3,4	3,2	3,2	3,2	3,1	2,9	3,3
After																
Entering	3,5	3,6	3,8	4,2	3,5	3,6	3,8	3,4	3,5	3,2	3,5	3,4	3,3	3,1	3,1	3,5
xitin	2,5	2,6	2,3	2,5	2,4	2,3	2,2	2,5	2,4	2,3	2,1	2,2	2,2	2,2	2,2	2,3
Difference																
Entering	1,0	1,2	1,2	1,7	1,0	1,1	1,4	0,9	1,1	0,9	1,2	1,0	0,9	0,7	0,8	1,1
Exiting	-0,9	-0,8	-1,0	-1,1	-1,2	-1,0	-1,4	-1,2	-0,8	-1,2	-1,0	-1,0	-1,0	-1,0	-0,7	-1,0

1/ Number of household's members divided by the number of income earners members

Table 2: Poverty gaps. Greater Buenos Aires, 1992-1999

(median income / poverty line)

	May-92	Oct-92	May-93	Oct-93	May-94	Oct-94	May-95	Oct-95	May-96	Oct-96	May-97	Oct-97	May-98	Oct-98	May-99	Average
Entering poverty																
Before	1,45	1,66	1,47	1,43	1,47	1,49	1,76	1,39	1,39	1,44	1,42	1,40	1,47	1,30	1,39	1,46
After	0,78	0,76	0,72	0,70	0,77	0,77	0,69	0,77	0,75	0,76	0,66	0,71	0,76	0,75	0,75	0,74
Exiting poverty																
Before	0,79	0,80	0,80	0,81	0,68	0,78	0,70	0,74	0,79	0,74	0,71	0,73	0,71	0,75	0,74	0,75
After	1,66	1,48	1,53	1,52	1,61	1,48	1,72	1,31	1,42	1,35	1,42	1,43	1,36	1,38	1,32	1,47